deeply suffused with red; in this state they can be found through June and July, when, however, they are less common than at other times: they reach maturity about the tenth of August, but occur throughout the summer from May to September, being the most abundant in August.

I would here mention another hemipteron that affects the same plants, through July and August, the *Liburnia dorsalis* of Fitch, who described it under the Fabrician genus *Delphax*. Like the foregoing species it derives protection by its close resemblance to the inflorescence of its native grasses, being of a soiled yellow or testaceous color with a darker dorsal stripe. It is not a common species here, and is difficult to capture as it is very shy and agile, and when approached leaps so quickly that the eye cannot follow it. I have never taken the young.

## VARIABLE NUMBER OF MOLTS OF INSECTS.

BY ANNA KATHERINA DIMMOCK, CAMBRIDGE, MASS.

The first notes given below are translated from a paper by Alfred Wailly, entitled "Educations d'attaciens sérici-gènes faites à Norbiton, Surrey, Angleterre, en 1884" (Bull. d'insectol. agricole, Nov. 1885, v. 10, p. 173-174).

"In my English article, recently published in the Journal of the Society of arts, of London, I have given certain accounts of the curious system employed by Mr. Weniger in rearing lepidoptera and of the extraordinary results obtained by him. He rears the larvae in a large glass box, a green-house in miniature, heated by a kerosene lamp, upon which is placed a saucer filled with water. The larvae, kept at a uniform temperature of about 25 degrees centigrade, live in an atmosphere charged with the vapors of water and kerosene, and instead of dying of disease, they develop with extraordinary rapidity. I have seen the larvae of *Antheraea mylitta*, hatched seven days after the deposition of the eggs, arriving at their last stage towards the end of a month. *Attacus atlas* was reared in a like manner, and fourteen days after the formation of the cocoons, the emergence of the moths took place; but not a single copulation was obtained. Many delicate species difficult to rear, have been reared in this manner with great success.

"There is also a fact which, I think, here merits attention. The larvae of *Antheraea mylitta* and of *Ceratocampa imperialis*, species considered as having six stages, and which, when reared under normal conditions actually have the six stages, when reared in this

warm, moist atmosphere have but five stages; Mr. Weniger tells me that there was no error on his part as to the number of stages; none were overlooked.

"My correspondent in Ceylon, who has for many years reared *Antheraea mylitta*, likewise asserts in an article published by him in a journal at Colombo, and which I have lately read, that the *mylitta* race which he reared had but five stages; in Ceylon too the climate is warm and moist.

"*Platysamia cecropia* has also six stages, but cannot this likewise have but five, reared under these same conditions? May we not conclude from these facts that certain species of lepidoptera can have many or fewer stages according to the conditions or according to the way in which they are reared? Further observations will be made on this subject which I shall submit to the society."

In connection with this article by Mr. Wailly, it may be well to mention a few more observations on this interesting subject. Dr. C. V. Riley (1st ann. rept. state entom. Mo., 1869, p. 145), observed that the larvae of *Orgyia leucostigma* which produced females had four molts, while those producing males had but three. Mr. J. Hellins (Entom. month. mag., 1881, v. 18, p. 86) noticed, apparently, no sexual difference as regards the number of molts of *Orgyia antiqua*, having reared four larvae which molted as follows: one male molting three, another one four times; one female molting four, another one five times. This is at variance with Dr. Riley's statements above noted. Yet another observer, Mr. N. Coleman (Papilio, 1882, v. 2, p. 165), noticed the fact that a certain larva of *Orgyia leucostigma*, bred at the same time, and under the same conditions as others of its species, molted once more than did any of the others, and that this individual, upon emergence from the cocoon, proved to be a female. The variability of the number of molts of *Orgyia leucostigma* is evidently for the purpose of enabling the female to attain its full size, which is, in that genus, considerably larger than that of the male, but there is possibly a variation in the number of molts that is due to climatic influences, corresponding, therefore, in a way, to the results obtained by Mr. Weniger.

Dr. C. V. Riley disagrees with Mr. Wailly as to the number of molts of *Attacus cecropia*, the former (Amer. entom., Feb., 1870, v. 2, p. 100) recording but five, the latter (Bull. Soc. aclim. France, May 1882, s. 3, v. 9, p. 266-267) six stages. Might not this be due to climatic influences? Mr. W: H: Edwards stated (Psyche, 1881, v. 3, p. 171) that he found upon rearing *Callosamia promethea* that the larvae molted but three times, while Mr. Lintner (Entom. contributions, no. 3, 1874, p. 126) believes the larva of this species to have four molts. As Mr. Edwards' specimens were reared farther south than were Mr. Lintner's, it would appear that this instance, if due to climatic influence, was as would be expected, i. e., that the larvae reared at the north had more molts than those reared at the south.